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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,898	06/28/2001	John W. Butzberger	SRI/4438	3387

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EXAMINER
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PIERRE, MYRIAM

ART UNIT	PAPER NUMBER
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2626

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/29/2006	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

09/894,898

Applicant(s)

BUTZBERGER ET AL.

Examiner

Myriam Pierre

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 8-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### **Response to Amendment**

1. This communication is in response to Remarks filed, 9/28/06.

### **Response to Arguments**

2. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3-6, 8-10, and 12-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Sharma et al. (2002/0143551).

As for claims 1, 18, 34-36, Sharma et al. teach

acquiring a first set of data structures that contain a grammar,  
a word sub-grammar, a phone sub-grammar and a state sub-grammar, each of the  
sub-grammars related to the grammar (page 3 paragraph 31 lines 1-12; context free grammar,  
words, and phoneme, related to speech decoder which divides or breaks down the word based  
on the word, CFG (context free grammar) and the phoneme);

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acquiring a speech signal (speech input, page 3 paragraph 28 lines 1-2);  
performing a probabilistic search using the speech signal as an input, and using the first set of data structures as possible inputs (page 6 paragraph 55 lines 5-6);  
and allocating memory for one of the sub-grammars when a transition to that sub-grammar is made during the probabilistic search (page 3 paragraph 31, lines 12-19; memory is allocated for vocabulary that has specific tasks such as commanding and controlling applications).

wherein the first set of data structures is generated by the speech recognition system based at least in part in part on a grammar provided by a remote computer (page 5 paragraph 48 lines 8-15).

As to Claim 3, which depends on claim 1, Sharma et al. teach  
the set of data structures for a voice-user interface is sent through a communication channel by a remote computer and that the set of data structures is generated by the speech recognition system using information provided at least in part by a remote computer (page 2 paragraph 21 lines 1-9).

As to Claim 4, which depends on claim 3, Sharma et al. teach  
a set of data structures included in code that defines a web page and data structures associated with one or more web pages (page 2 paragraph 20 lines 6-10).

As to Claim 5 ,which depends on claim 3, Sharma et al. teach

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a set of data structures included in code that defines a web page and data structures associated with one or more web pages (page 2 paragraph 20 lines 6-10).

As to Claim 6, which depends on claim 1, Sharma et al. teach a set of data structures is selected by a remote computer (page 5 paragraph 48 lines 8-15).

As to Claim 8, which depends on claim 1, Sharma et al. teach acquiring a second set of data structures that contain a second grammar, a second word sub-grammar, a second phone sub-grammar, and a second state sub-grammar, each of the second sub-grammars related to the second grammar (page 3 paragraph 31 lines 1-12; context free grammar, words, and phoneme, related to speech decoder which divides or breaks down the word based on the word, CFG (context free grammar) and the phoneme).

As to Claim 9, Sharma et al. teach the second set of data structures replace the first set of data structures (page 3 paragraph 31 lines 1-12; context free grammar, words, and phoneme, related to speech decoder which divides or breaks down the word based on the word, CFG (context free grammar) and the phoneme, making the first data structure of the phoneme replaced by the word)

As to Claim 10, Sharma et al. teach the second set of data structures is acquired while the speech recognition system is operating (page 2 paragraph 23 lines 5-11).

As to claim 11, Sharma et al. teach a speech recognition system, a method for recognizing speech comprising the steps of:

acquiring a first set of data structures that contain a grammar, a word sub-grammar, a phone sub-grammar and a state sub-grammar, each of the sub-grammars related to the grammar structures (page 3 paragraph 31 lines 1-12; context free grammar, words, and phoneme, related to speech decoder which divides or breaks down the word based on the word, CFG (context free grammar) and the phoneme, making the first data structure of the phoneme replaced by the word);

performing a probabilistic search using the speech signal as an input, and using the first set of data structures as possible inputs (page 6 paragraph 55 lines 5-6);

allocating memory for one of the sub-grammars when a transition to that sub-grammar is made during the probabilistic search causes the word probability processor to instantiate (page 3 paragraph 31 lines 12-19).

computing a probability of a match between the speech signal and an element of the sub-grammar for which memory has been allocated (page 3 paragraph 31 lines 12-19).

wherein the first set of data structures is generated by the speech recognition system based at least in part in part on a grammar provided by a remote computer (page 5 paragraph 48 lines 8-15).

As to Claim 13, which depends on claim 11, Sharma et al. teach

acquiring a second set of data structures that contain a second grammar, a second word sub-grammar, a second phone sub-grammar, and a second state sub-grammar, each of the second sub-grammars related to the second grammar (page 3 paragraph 31 lines 1-12; context free grammar, words, and phoneme, related to speech decoder which divides or breaks down the word based on the word, CFG (context free grammar)).

As to Claim 14, which depends on claim 11, Sharma et al. teach the second set of data structures replace the first set of data structures (page 3 paragraph 31 lines 1-12; context free grammar, words, and phoneme, related to speech decoder which divides or breaks down the word based on the word, CFG (context free grammar) and the phoneme, making the first data structure of the phoneme replaced by the word)

As to Claim 15, which depends on claim 13, Sharma et al. teach the second set of data structures is acquired while the speech recognition system is operating (page 3 paragraph 31 lines 12-19).

As to Claim 16, which depends on claim 11, Sharma et al. teach a set of data structures included in code that defines a web page and data structures associated with one or more web pages (page 2 paragraph 20 lines 6-10).

As to Claim 17, which depends on claim 15, Sharma et al. teach

a set of data structures included in code that defines a web page and data structures associated with one or more web pages (page 2 paragraph 20 lines 6-10).

As to Claim 19, which depends on claim 18, Sharma et al. teach the top level grammar includes one or more word sub-grammars, the word sub-grammars including words that are related according to word-to-word transition probabilities (page 3 paragraph 31 lines 1-12; context free grammar, words, and phoneme, related to speech decoder which divides or breaks down the word based on the word, CFG (context free grammar) and the phoneme, making the first data structure of the phoneme replaced by the word)

As to claim 20, which depends on claim 19, Sharma et al. teach each word in a word sub-grammar includes one or more phone sub-grammars, the phone sub-grammars including phones that are related according to phone-to-phone transition probabilities ("page 6 paragraph 55 lines 5-6 and page 3 paragraph 31 lines 1-12).

As to claim 21, which depends on claim 20, Sharma et al. teach each phone in a phone sub-grammar includes one or more state sub-grammars, the state sub-grammars including states that are related according to state-to-state transition probabilities page 3 paragraph 31 lines 1-12; state to state transition is found in context free grammar).

As to claim 22, which depends on claim 21, Sharma et al. teach

the probabilities of matches between the speech signal and elements of the sub-grammars for which memory has been allocated is computed using one or more probability distributions associated with each state (page 6 paragraph 55 lines 5-6).

As to claim 23, which depends on claim 22, Sharma et al. teach that when a word is allocated in memory, an initial phone for the word and an initial state for the initial phone are also allocated in memory (page 3 paragraph 31 lines 12-19).

As to claim 24, which depends on claim 23, Sharma et al. teach one subsequent states are allocated in memory until the end of the phone is reached, the allocation based on a transition probability at each state (page 3 paragraph 31 lines 12-19 and page 5 paragraph 45 lines 12-16).

As to claim 25, Sharma et al. teach one subsequent phones are allocated in memory until the end of the word is reached, the allocation based on a transition probability at each phone (page 3 paragraph 31 lines 1-12).

As to claim 26, which depends on claim 21, Sharma et al. teach when a state probability falls below a state threshold, the state is de-allocated from memory. (page 6 paragraph 55 lines 5-6)

As to claim 27, which depends on claim 26, Sharma et al. teach

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the state threshold is dynamically adjustable (page 3 paragraph 31 lines 12-19).

As to claim 28, which depends on claim 21, Sharma et al. teach  
that when a phone probability falls below a phone threshold, the phone is de-allocated  
from memory (page 3 paragraph 31 lines 12-19).

As to claim 29, which depends on claim 28, Sharma et al. teach  
the phone threshold is dynamically adjustable (page 3 paragraph 31 lines 12-19).

As to claim 30, which depends on claim 21, Sharma et al. teach  
that when a word probability falls below a word threshold, the word is de-allocated from  
memory. (page 3 paragraph 31 lines 12-19; small vocabulary is used when necessary to save  
space)

As to claim 31, which depends on claim 21, Sharma et al. teach  
the word threshold is dynamically adjustable (page 3 paragraph 31 lines 12-19; small  
vocabulary is used when necessary to save space).

As to claim 32, which depends on claim 26, Sharma et al. teach  
that when all the states associated with a phone are de-allocated from memory, the phone  
is de-allocated from memory (page 3 paragraph 31 lines 12-19)

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As to claim 33, which depends on claim 32, Sharma et al. teach that when all the phones associated with a word are de-allocated from memory, the word is de-allocated from memory (page 3 paragraph 31 lines 12-19; small vocabulary is used when necessary to save space).

6. Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al. (2002/0143551) in view of Chou et al. (5,805,772).

As to claim 2, which depends on claim 1, Sharma et al. teach probabilistic search (page 6 paragraph 55 lines 5-6).

Sharma et al. do not teach that the probabilistic search is a Viterbi beam search (page 6 paragraph 55 lines 5-6).

However, Chou et al. do teach the probabilistic search is a Viterbi beam search (col. 6 lines 32-47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the Viterbi beam search of Chou et al. into the speech recognizer of Sharma et al., because Chou et al. teach that this would provide a reduction in computational complexity as compared to a full search, col. 6 lines 32-47.

As to claim 12, which depends on claim 11, Sharma et al. teach probabilistic search (page 6 paragraph 55 lines 5-6).

Sharma et al. do not teach that the probabilistic search is a Viterbi beam search (page 6 paragraph 55 lines 5-6).

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However, Chou et al. do teach the probabilistic search is a Viterbi beam search (col. 6 lines 32-47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the Viterbi beam search of Chou et al. into the speech recognizer of Sharma et al., because Chou et al. teach that this would provide a reduction in computational complexity as compared to a full search, col. 6 lines 32-47.

### *Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. see PTO-892.

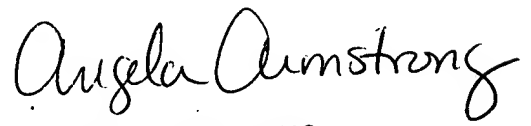
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Myriam Pierre whose telephone number is 703-605-1196. The examiner can normally be reached on Monday – Friday from 5:30 a.m. - 2:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Myriam Pierre  
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12/26/06

  
**ANGELA ARMSTRONG**  
**PRIMARY EXAMINER**